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Edited by William Hunting, F.R.C.V.S.

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The Prevention of Blackleg.

It is not long since the prevention of blackleg was generally attempted by the insertion of setons, and not a few practitioners still maintain that this treatment is unmistakably beneficial. Our belief in this practice was much shaken by the work of Professor Stockman, and especially by the statements that young bovines had been known to die from black-quarter with setons in their brisket.

Preventive vaccines in their early days were rightly received with suspicion, owing to one or two unsuccessful experiments, and they were generally discarded after the publication of some experiments made by a Committee of the National Veterinary Association.

Recently we have published two articles from practitioners who have given the new vaccine a trial, and both speak highly of their value. Firms of the highest standing now supply these vaccines, with simple directions for use, and in a form easy to use. They assert their value in positive language, and this, with the testimony offered by our correspondents, ought to induce practitioners to adopt the vaccines. Probably they are more widely used than we suppose—if so we should be glad to hear the results.

It would be most unfortunate if the most modern preventive treatment of blackleg were neglected by veterinarians but adopted by stockowners—and then proved to be safe and effective. There is a danger of this coming to pass. Technical classes and agricultural departments are progressive institutions. The manufacture of vaccine is an expensive process, and one which requires, when once started, a regular demand for its products. If the manufacturers are convinced of the efficacy of their products and the veterinary profession fail to use them, it is certain that, as a business precaution, they will appeal direct to the stockowner.

Even Mallein and Tuberculin have been used, or abused—perhaps both—by the amateur, although the veterinarian has generally adopted them. The vaccine for prevention of blackleg is more easily used than these, and therefore we suggest that our practitioners should keep in their hands what is apparently a useful and valuable agent as well as a means of retaining remunerative practice.

Tuberculin.

A leading man in the pedigree world made some very ridiculous remarks lately about the value of tuberculin. He has now exposed his ignorance and prejudice by giving his reasons (?) for his statements. As we expected they are based solely on some rumours he has heard. His cause of complaint is that the agent is not perfect. Nothing in this world is, but tuberculin and mallein are invaluable, and so near absolute trustworthiness that no one save those who fear their truthfulness will venture to decry them.

ERRORS.

I think Mr. Wallis Hoare's article on "Errors" is as sensible a production as I have read for some time. It is certainly very true. There are one or two things in it that admit of controversy.

I hardly think that "once a reputation is established mistakes may be made *ad lib*, but they are glossed over and overlooked." Even if the practitioner with a splendid reputation makes many mistakes and at the same time poses as a "leading light with a supernatural air of knowledge and dignity' his reputation suffers, and if he is fool enough to believe he is infallible and has any sense of proportion about him I should say he suffers too when his mistake comes to light. The British public are perhaps gullible enough, but some of them can see through a stone wall that has no mortar in it. An American statesman once said "you can fool all the people some of the time; you can fool some of the people all the time; but you cannot fool all the people all the time." Fortunately some of the "leading lights" do make mistakes as well as their younger brethren. The result of the mistake depends on the sort of client dealt with. The result of the mistake may also depend on the way you, the veterinary surgeon, deal with your client in the matter.

One can readily sympathise with Mr. Hoare in his situation with the man of many questions, who might have been an employer in search of a servant. They used to tell me when I was a boy that an Irishman's way of answering a question was to ask his questioner another question back, and I should have felt inclined to ask this one one or two.

In heart affections I think we ought to try to distinguish between functional derangement and organic disease. This, I think, we ought very fairly to be able to do, if the horse has been under our observation for some time. Of course in a horse brought in casually for examination an affection of the heart might be overlooked.

The fact of an animal dying suddenly, after examination, from heart disease doesn't altogether show that a mistake was made at the time he was examined, and I think Mr. Hoare is rather too hard on himself in this respect. Thrombosis and subsequent embolism, or syncope, or rupture of the heart might cause sudden death without being detectable by the most careful practitioner. That pleurisy may be preceded by an attack of abdominal pain is an undoubted fact, and I am of opinion that other diseases of the lungs may be heralded by signs of abdominal pain. I have seen on post-mortem rupture of the bowel and acute inflammation of the

lung, the latter appearing to be of septic origin. I have also seen horses one day with a normal temperature showing signs of abdominal pain, and next day with a temperature of 104 or 105, and showing all the symptoms of lung affection.

Instead of ordering the destruction of a case about which we are doubtful, why not tell the client we have done all we know (because we ought never to be doubtful, about a case until we have done all we know) and suggest calling in another practitioner upon whose honesty and good faith *we* can rely, and whose opinion and judgement is respected by his professional brethren. Surely there is one such valuable gentleman in Mr. Hoare's district.

In fracture of the first rib, in radial paralysis, ni injury to the flexor brachii, and in rupture of the muscles at the back of the scapula the symptoms may be so similar as to admit of no differentiation. Personally I am satisfied on this point by post-mortem examinations both here and in Liverpool.

Fractures up towards the hip in dog practice are not easily diagnosed, but in all cases of a history of being run over by a motor or trap it is always well to carefully examine the innominate bones, even if the observer of the accident says the dog was run over across his middle.

Mr. Wallis Hoare does not mention errors in evidence in courts of law. In one case recently reported in *The Record*, a professional witness is reported as having said that tails were always amputated at the joint. Men of any experience know this is not a fact. One man in a recent case said "once a roarer always a roarer," and I think with a little research I could quote many other erroneous opinions. I am afraid some of His Majesty's judges have sufficient wordly knowledge to wonder and remain silent in the face of such evidence, but I don't think they place much faith in it when they give judgment.

In conclusion, I should like to say that one veterinary surgeon I was pupil with used to tell his clients when they were too querulous as to future possibilities, that "he was not a prophet, he was only a veterinary surgeon," and he was a jolly good veterinary surgeon, too.

As regards our attitude in the matter of consultatations, a friend of mine once told me a tale about two veterinary surgeons, both since gone over to the great majority, which tale has a moral in it. There were two veterinary surgeons in practice in the same town whom we will call A. and B. Some horses fell ill with infectious lung trouble. All the animals in the stable got it more or less. Mr. A., the regular veterinary surgeon in attendance, had bad luck and several of the horses died, and he used many medicines in the treatment of them. Mr. B. was called in in consultation. He stated his view of the cases, "he gave the disease a name and stuck to it, and was definite and unvarying in his treatment." (Personally, in this affection and in taking this view I think he was wise and practically correct, both in the owner's interests and his own). After giving his view as to treatment he said to A's client "now I have told you what I think and no doubt A. will carry out the treatment I've recommended." The client was not satisfied and said—"You see the number of dead horses I have had, you, Mr. B., must come and treat them yourself, or else I shall call an outside man altogether." Both A. and B. agreed that this would not be to either of their interests. B. continued treatment of the horses and had good luck with his simple treatment and definite name. The client probably knocked something off A's bill and paid B. in full, but thanks to B.'s manliness A. retained the future work until his death. This is the spirit in which consultations should be carried out. There are some men too narrow minded ever to make good consultants. There are some men broad-minded enough and with worldly knowledge and candour enough to make good consultants.

G. MAYALL.

TWO ABNORMALITIES.

During the summer of 1900 Mr. W. A. Dellagana, F.R.C.V.S., of the Egyptian Sanitary Department, was veterinary officer of the Society for the Prevention of Cruelty to Animals in Cairo, and many interesting cases came under his notice. One day he asked if I would like to see a donkey with a false nostril situated on the frontal region. Naturally, I attended, and armed with a Kodak I proceeded to the Society's yard and got some fairly good snap-shots, which I forward herewith for insertion in *The Veterinary Record* if they are considered worth reproducing.

"False Nostril," side view.

I may mention that the above Society make very praiseworthy efforts to check the gross cruelty to animals which is so common in Egypt. Such trivial cases as collar galls, etc., are practically ignored, indeed, the Arab apparently is ignorant of the fact that animals have any feeling whatever. The English, of course, are the chief supporters of this Society and funds are procured from various sources, from a fancy dress ball to amateur theatricals, etc. Mr. Longworth, an American, the

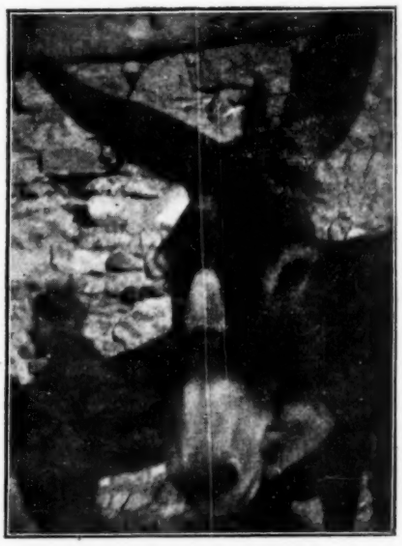
editor of *The Sphynx*, is also a staunch supporter and great friend to the Society in a pecuniary sense.

No. 1, 2, and 3 shew this so-called false nostril from front and side view. The term false nostril exactly describes this appendage, even to the color and nature of the hair on the outer side, and the dry half skin, half mucous membrane lining it internally. There was no communication with the frontal sinuses.

No. 4 and 5 show a good case of seven permanent incisor teeth in the lower jaw of a horse. The right corner tooth and the one next to it were somewhat smaller than the others and the crowns less oblong in shape.

Thanks to this Society, glanders and farcy are kept somewhat in check. All cases of cruelty stopped by the police are brought to the Society's yard next morning, when the veterinary officer orders the destruction of animals not worth treating, the others he takes into the infirmary where they are immediately tested with mallein. By this means, infected stables are located and all the animals therein promptly tested.

T. MARRIOTT, Vet.-Major A.V.D.



"False Nostril," front view.

No. 4

No. 5

ON VACCINATION AGAINST DISTEMPER IN DOGS.

By Prof. J. Lignières.

If I am widely credited with the discovery of the microbe of distemper in dogs, it seems that in France my researches on vaccination are almost completely unknown.

Now the following passage occurs in my memoir published at Buenos Ayres in April, 1900, and at the Central Society of Veterinary Medicine* on June 28th, 1900:—"Experiment shows that inoculation with an attenuated culture transmits to the dog a very marked resistance compared with that of the control animals."

It may be said also that since January, 1901, we have given away freely in Argentine vaccine against distemper in dogs, as well as in the case of the other Pasteurelloses. Our first results were included in a report which was presented by the lamented M. Leblanc to the "Société des Agriculteurs de France."

In the report of the meeting of March 7th 1901, we read these words:

"M. Le Comte asked if inoculation as a protection to young dogs had entered into the practical phase."

"M. Leblanc replied that experiments had been made; some young dogs which had been inoculated and then put in contact with infected animals (and it is known that this disease is eminently contagious) resisted infection successfully."

Dr. Phisalix therefore is not just when he concludes his first communication of May 6th, 1901, to the Académie des Sciences, in which he states that he has solved the problem of vaccination for canine distemper, without devoting a single word to the anterior work of others in the same field.

The question of priority, interesting though it may be, is not of the same importance as another point in Dr. Phisalix's communication. I have affirmed in speech and in writing on many occasions that all the vaccines recommended against the Pasteurelloses in general and canine distemper in particular, afford a relative immunity only, not at all comparable to that which follows the Jennerian vaccine or the anti-anthrax vaccine. Could Dr. Phisalix have done better, might he not have discovered a new vaccine more efficacious than those obtained from him as the statistics which he published on May 26th, 1902, appear to show? Had he succeeded it would have been not only an important discovery as far as dogs are concerned, but also for the many and serious affections which belong to the group of Pasteurelloses.

This question, which has been for so long a time the object of my continued researches, could not fail to arrest my attention. At once I made it my business to test the qualities of the vaccine prepared by Dr. Phisalix. At Buenos Ayres I first of all immunised dogs with vaccine prepared by that savant and purchased in Paris. The first trial was not favourable; two young dogs, each three months old, which were inoculated showed strong tumefaction at the place of inoculation; then fever ensued and they died, one on the eighth day and the other on the eleventh day after the injection, without having been in contact with animals suffering from the disease.

A second vaccine produced, on the contrary, no trace of reaction, but at the test inoculation the vaccinated dogs showed themselves as susceptible as the control animals. Although this vaccine had been kept in an ice chamber the whole time of the journey, and in the first experiment had shown itself too strong; it might be objected that, in this case, the length of the voyage had caused the vaccine to lose its efficacy. In a third experiment I had vaccinated in Paris four young dogs with vaccine prepared by Dr. Phisalix, taking care to follow very closely the instructions given with the vaccine. Of these four dogs which were inoculated, two received a virulent inoculation, as did two control animals; this time also the four dogs showed exactly the same sensibility.

Finally, in a fourth experiment, two dogs inoculated with the Phisalix virus, two control dogs, and two vaccinated with my polyvalent vaccine were inoculated at the same time in the vein with 1 cubic centmeter of the same virulent *Pasteurella canis* (1). The Phisalix dogs and the controls showed themselves sensitive in an equal degree; all four died in from twenty-two to thirty hours; the two dogs vaccinated with the polyvalent were sick for twenty-four hours, but quickly regained a normal condition. By the light of these experiments one may conclude that Dr. Phisalix, far from having outstripped his forerunners, has not yet overtaken them. It is possible that an error has slipped into his statistics without his detecting it.

It was very plain duty to point out all these facts in order to safeguard both the specificity of the microbe and the efficacity of anti-Pasteurellic vaccination by attenuated virus. I have, moreover, the conviction that Dr. Phisalix will find it easier to establish the virulence of his vaccine, and so avoid sooner or later the certain check which awaits him in the contrary case (2).—(Paper read before the Central Society of Veterinary Medicine, Paris, July 9th, 1903).

This paper was also read before the Paris Society of Biology on July 4th, 1903, when Dr. Phisalix replied to the criticisms made by Prof. Lignières on his work.

Dr. Phisalix said if any credit of these questions of vaccinations were due to anybody, the priority ought to be attributed to Pasteur. He had the intention of introducing the method into practice and

* Vide *The Veterinary Record*, p. 605, vol. xv., 1902-3.

(1) This dose of virus introduced the vein corresponds experimentally almost to the minim lethal dose. In 1893 I made before M. Nocard, at Buenos Ayres, an analogous experiment on sheep in order to show the efficacy of the vaccine which I was preparing at that time.

(2) See my communication of the 20th of May, 1902, to the Académie des Sciences, on the method of elaboration of polyvalent vaccines. (Also Proceedings National Veterinary Association, London, 1902.—Trans.)

found the way, because the writings of M. Lignières seemed to indicate only the possibility of vaccination against distemper.

The experiments made by M. Lignières to test the Phisalix vaccine were wide of the mark. It was not a question in fact of knowing whether vaccinated dogs resisted the strong virus test intra-venously but rather the natural infection or contagion, which was the sole aim to attain in practice.

As to the statistics that he had published, Dr. Phisalix said that all statements were verified, and that the observations furnished by veterinary surgeons of different countries agreed with those noted in his service at the Museum.—(*Revue Vétérinaire, Aug., 1903.)*

Discussion.

Prof. Trasbot: I should like to ask M. Lignières a simple question arising out of his interesting communication. Is he quite sure he has discovered the microbe of canine distemper? In treating that as a Pasteurellosis has he not mistaken an accessory agent, more or less trivial, for an essential? For my own part I am not quite convinced of the correctness of his opinion. In spite of the great confidence which I have in his method of research and the care which he brings to the accomplishment of his work, I cannot help feeling a doubt on the results achieved by his manner of observation, because it is contrary to well-established facts of clinique and comparative pathology.

What is called distemper presents itself generally to our observation in a very complex state and under varied forms; secondary things have acquired a predominant importance which effaces the primary and essential features characteristic of the affection, the result is that the latter pass almost unnoticed and one is led into an erroneous conception of their quality relative to the former.

In its natural and essential form this disease is an eruptive affection, which develops only by contagion, contrary to what has been believed for so long. It is contagious by infection of the environment and by inoculation. When one inserts under the epidermis of a dog (taking of course one that has never been attacked by this disease) a drop of the serosity drawn off from the cutaneous eruption, the disease is always transmitted. I have tried the experiment a great number of times and have never failed.

As a result of inoculation, at the end of two or three days fever is produced, then two or three days later the cutaneous eruption breaks out. From the serosity oozing from the derma the epidermis is raised into numerous almost hemispherical vesicles having a diameter ranging from that of a grain of hemp seed to that of a small lentil. It is without doubt this serosity which contains the essential microbe of the disease, since it is that which is inoculable. But it is not in this serosity that M. Lignières has collected the bacillus which he has cultivated. Moreover, I am unaware that even to this day anyone has ever succeeded in isolating and cultivating outside the organism the microbe of human smallpox or that of equine smallpox, which transmitted accidentally to the ox and since then improperly called vaccine, is also inoculable to man, from whom it removes the disposition to contract the variola peculiar to his species. The pustules or vesicles, as one prefers to call them, (I attach no importance to the nomenclature) which are developed on the dog's skin in consequence of the inoculation soon break, the serosity which they contain dries up and is reduced to impalpable powder which, scattered broadcast in the air, infects the neighbourhood. All that remains is a small red spot, neither convex nor concave, which disappears in a few days.

That is the course taken by the artificially-produced disease, when, as is the rare exception, it preserves its simple and essential form. Almost always, even when transmitted experimentally, it is soon accompanied by all the complications with which you are familiar: catarrhal affection of the principal respiratory channels, pneumonia, gastritis, gastro-enteritis, myelitis, chorea, etc., supervening in the organism which has been thrown into a condition of special receptivity by the invasion of other microbes, the effect of which is then only clearly visible in subjects accidentally contaminated. However, when the affection is of not more than a week's growth, one always recognises traces of pustules on the stomach and the inside surface of the thighs. In the earliest works on the subject this eruption is described, but as an accessory thing: just as the equine pustule was marked as a *pemphygoïd* or *phlyctenoïd* eruption complicating strangles. In both cases the essential fact was taken as the complication, and reciprocally.

Well, it appears to me that M. Lignières falls into this old mistake which, moreover, all efforts have failed to eradicate. He has simply studied and cultivated a microbe of pneumonia, superadded to the original disease, and not the really specific agent of the latter, he has succeeded in reproducing a special pneumonia, which he places correctly, as I think, among the pasteurelloses, but this pneumonia is not the true specific distemper of dogs, but only a complication of it in those cases where it exists along with it.

M. Mouquet: The work of our colleague M. Lignières, and that of Bimes, Sérés and others, to speak only of Frenchmen, gives to distemper and canine typhus a common origin: infection by the same pasteurella.

Without doubt interesting facts are brought forward in support of this seductive point of view, and the opinion of our colleagues is perhaps a good one; yet I cannot help recognising that practitioners exhibit, in spite of bacteriological researches, a certain hesitation to identify the two diseases. The differences which they present in their evolution, the evidence that distemper with its usual features may be found in the course of very virulent epidemics of typhus, the fact that typhus appears to respect the young but attacks the fullgrown and the old (Ducourneau, and I have up to the present only very rarely met typhus in young animals), the little clinical resemblance of mild cases of typhus with ordinary or mild cases of distemper, the failure to verify in *the period of convalescence* of typhus, nervous disturbance

(paraplegia, chorea), analogous to those which one sees so often in the period of convalescence of distemper[1] are matters which give birth to doubts in certain minds.

I will say, in conclusion, that I am nearly certain (without being able, however, to support my opinion by bacteriological researches) that water is the great vehicle of the infecting agent of typhus.

This disease, in reality, commences with digestive troubles of different intensity; contagion by the air, which ought *theoretically* to commence with pulmonary troubles, seems less certain. In the course of epidemics of variable virulence which I have observed, it has happened that patients have been brought to me, on the same day, from districts at a distance from one another (from the height of Montmartre, for instance, and quartier de l'Etoile). These patieuts, dogs kept in luxury, living in flats, going out only on leash, having little or no contact with their fellows, could not have been infected by other dogs.

M. Butel: According to M. Lignières' communication distemper and canine typhus are one and the same disease, bearing different names and differing in power of contagion. I believe that this assertion of our colleague will not be readily accepted by practitioners. This is the reason why. When a dog is attacked by typhus and comes in contact with a series of dogs which have had distemper, all the latter, none the less, nearly without exception, take the typhus, and, almost without exception also, succumb. Thus we see that the preservation, ordinarily so effective, of dogs that have had distemper against a second attack breaks down altogether in this case. This is strong proof that if from distemper and typhus we can extract the same microbe, there are in all probability others acting along with it to give to typhus its special characteristics, which differentiate it, from the double point of view of clinique and contagion, from distemper properly so-called. Since, apropos of his communication, M. Lignières has introduced as well equine infectious pneumonia, let me tell him that there again a great many practitioners, who have often had occasion to observe infectious pneumonia and influenza, persist in seeing in them two distinct affections, although they border on one another. For M. Lignières, all is clear, all is demonstrated: his group of pasteurelloses allows one to explain without great difficulties nearly all the problems of internal pathology. Well! I find that too fine, I find that we must deduct much from it, and that the great group of pasteurelloses will not resist altogether to the test of time and the works of control. Our colleague, M. Moussu, has given us recently the proof of it for the gastro-intestinal strongyloses of the sheep. That is the first breach. How long before there are others? Although I find myself in disagreement with M. Lignières on some special points, which appear to me open to argument, I am glad that this question permits me to pay public homage to my learned colleague and to say that his intense industry has gained for him the admiration of very many and the esteem of all.

M. G. Petit: If one were trusting purely and simply to pathological anatomy, that is to say to lesions found at the post-mortem and which have caused death, it would be proper to differentiate distinctly, or else regard as two affections quite different, distemper and hæmorrhagic gastro-enteritis, still described under the name of typhus and which Messieurs Bimes and Sérès studied in 1901.

The post-mortem of dogs which have died of distemper shows in reality in the immense majority of cases and often exclusively, suppurative lobar pneumonia, which one could designate equally well by the name of diffuse suppurative pneumonia. However, I will take care not to think that the canine pasteurellosis cannot, under the influence of certain microbian associations, manifest itself under the form of hæmorrhagic gastro-enteritis.

M. Lignières: The first objection which M. Trasbot makes against me, I have placed it many times during my researches under the etiology of distemper. Certainly nothing occupied me more than the care of distinguishing, among many different microbes found in the patients, that which played the preponderant *rôle*. I believe that I have found it in *pasteurella canis*, and to-day more than ever my observations and my new researches strengthen me in my first opinion. As for seeing in distemper as we know it to-day a canine variola, as M. Trasbot maintains, that seems to me quite impossible, as much from the clinical and histological point of view as from that of bacteriology and experimentation.

If I may judge by the nature of the observation which my colleagues Butel and Mouquet are good enough to make to me, it appears to me that I have not yet made myself sufficiently clear as to the manner in which I regard the pasteurelloses; I hasten, therefore, to seize this opportunity which is offered to me to explain myself again.

As I have already remarked, the pasteurella may attack healthy animals or even affect some systems already rendered pathological by the influence of extremely varied causes. In this last case, the etiology of the malady from which the animals suffer is, as one understands, more or less difficult to determine. It enters into the list of combinations into which I intend to enquire by and bye.

The cases are easier in which the healthy animals have to undergo the onslaughts of the pasteurella. However, even in these circumstances, there is much to be explained, or rather is not understood as easily as one would wish, and as practitioners desire, in particular our very esteemed colleagues Butel and Mouquet. In spite of the difficulties, we intend to try and find where we stand.

The diversity of the *rôles* which the pasteurella may play, whatever the species of animal attacked, is really one of the most important of the facts which proceed from my researches in the pasteurelloses, In reality, it is possible for them to invade

(1) On this point one may ask himself (whilst accepting as good the theory attributing these symptoms to the impregnation of the system by toxins) how it happens that a pasteurella of great virulence (typhus) does not give *latent nervous disturbance* (Mouquet, Ducourneau) when the same pasteurella of attenuated virulence (distemper) presents them so frequently?

the organism and play there the *rôle* of active determining agents of diseases under acute or subacute forms, generalised (septicæmia) or localized in certain organs, simple, or complicated by combination, and rarely in the chronic form, this last-mentioned being oftenest liable to these combinations. The *rôle* of the *Pasteurella* in fowl cholera was almost completely established before my researches; in the wild and rinderseuche (wild animal and cattle disease) in which Bollinger and Kitt had distinguished very clearly the septicæmic, thoracic, and abdominal forms; in buffalo barbone, the schweineseuche (swine-plague) which is still confused in France with hog cholera under the name of pneumo-enteritis. This porcine Pasteurellosis is also an excellent type of affections having multiple clinical forms: septicæmia, pneumonia, and gastro-enteritis. For the equine and ovine species, Galtier and Violet clearly determined the origin of their pneumo-enteritis in the fodder, which they had, rightly, placed beside the same affection in the pig.

By making a critical examination of previous studies, by determining the specific characters of the *Pasteurella*, and with the assistance of a wide clinical study, comparative and experimental, I have defined all previous researches, and enlarged their limits by the defined incorporation of identical affections existing in the horse, ox, calf, sheep, dog, etc., so as to establish on a base which I believe really scientific, a group already guessed at and largely outlined by several savants, notably by Hueppe, and to which I have given the name of "Group of Pasteurelloses." In passing, I will say but one word to those who think that in doing that I have done nothing more than substitute the name of Pasteurellosis for hæmorrhagic septicæmia, and that is that they will study the question more closely.

To-day nothing is more fully demonstrated than the peculiar property of the *Pasteurella* to cause in the equidæ, the bovidæ, the ovidæ, the porcidæ, the carnivora, the rodents, birds, etc., septicæmic affections, acute or subacute, with or without localizations, and of which the clinical forms may be various. *That is a fact gained definitely for science.* But, in practice, infections are far from being always primary. What troubles the clinical aspects in a way that is almost disconcerting, is that it is not only a question of the animal species attacked, of the nature and degree of the virulence of the *Pasteurella*, of localization and form of the lesions; it is above all a question of the microbian or parasitic combinations which may engraft themselves as the primary infection. An example borrowed from experimentation will give a good idea of one of the possible cases. Let us take three young dogs of the same litter. One of them is inoculated in the vein with $\frac{1}{4}$ c.c. of a virulent culture of *Pasteurella canis* and dies in consequence twelve hours after having shown symptoms of general acute infection with hæmorrhagic gastro-enteritis and lesions of septicæmia.

The two other dogs are also inoculated in the vein with $\frac{1}{4}$ c.c. of the same culture, but sufficiently attenuated to give only a slight transient affection.

Twenty-four after, the two dogs appear in good health; one of them then suffers extreme chilliness after it has been plunged for one or two minutes into a bath of cold water.(1)

Result: The latter exhibits all the symptoms of distemper with the cutaneous vesicles called characteristic, and contracts pneumonia which carries it off in ten days.(2) The second dog, on the other hand, remains well and shows nothing abnormal.

These are three distinct forms of an affection determined by the same microbe, but under different conditions.

I well understand that the clinician declines to see in the first septicæmic form which I had already established in 1900, in that typhus (Bimes, and Sérès), a disease identical with that of canine pneumonia. Even better, bacteriological studies demonstrate the presence, in the hepatised lung, of a new associated microbe, in almost in a pure state of culture and very different from that which one had inoculated.

Well, this is what I believe. The clinician is right not to confuse completely the two forms, they differ in reality. All the same, they are akin, because they have a common point, the *Pasteurella*. This knowledge, which sums up the new thing has a capital importance from the point of view of general pathology and also an account of the multiple practical considerations which arise from it—possible vaccination and sero-therapy. What I say of the dog is true, on the same evidence, of the other animal species, notably the sheep and the horse. In the case of the last mentioned, the strangles streptococcus (diplococcus of Schütz, streptococcus of Delamotte, Violet, and Galtier) complicates nearly all pasteurellic pneumonias.

But let us return now to our experimental dogs and consider the action of the Pasteurella on the one which died in a few hours of Septicæmia and on that which succumbed in ten days to distemper complicated by pneumonia.

It is quite logical to consider the action of the Pasteurella as very different in these two cases. In the first, the microbe violently overran the organism and had an active and determining *rôle*. In the second, its action was transitory but all the same sufficient to prepare the organism for a secondary infection. But this action, transitory, ephemeral, hidden, in which the *Pasteurella* play a modest, preparatory *rôle*, has variations. Sometimes the *Pasteurella* appears scarcely to have touched the organs in which one is no longer able to discover it; or it proliferates silently in some corner of the organism, the intestine, for instance, where it is very difficult to isolate it.

This more or less effaced rôle of the Pasteurella is again an absolutely positive fact gained for science, of considerable importance, as I was saying as far back as 1900. Unfortunately it is very difficult to put in evidence in practice and constitutes a great

(1) The same dogs when immersed before the inoculation and in the same conditions showed absolutely nothing in consequence of that experiment.

(2) In other cases other localizations resulted: pericarditis, peritonitis, gastro-enteritis, or even nervous troubles, those of chorea, for example.

hindrance to perfect agreement, I do not say between practitioners and those who work in the laboratory, but between practitioners themselves. Thus, nothing confirms me more in my opinion than the comparative clinical study of all the Pasteurelloses; and yet many of my opponents rightly draw their objections from their clinical observations.

Whatever the case may be, I have endeavoured to help to establish the *rôle* and the importance of the *Pasteurella* in pathology. Now it is the work of the practitioners, of observers, of savants to compare, to identify, or even to distinguish, to differentiate and separate the affections which they come across and which may have something in common with the Pasteurelloses. There is no doubt that in the different animal species one confuses affections radically distinct under the same denomination. Thus, under the name of equine influenza are concealed, perhaps, several morbid entities, just as the name of distemper may include affections which have no relationship. *Certainly from that point of view I have never doubted that there may be much to be cut away on the borders of the Pasteurelloses, but up till now I see nothing to be renounced.* These studies open, so to say, the new era of the complex etiology of certain affections in which there is no longer the simplicity of a simple contagion striking more or less identically the organism and being easily recognised again in the primary state in the tissues and the organs.

We penetrate deeper into the close connection of the preparatory causes of multiple affections, and we leap thus from the simple to the complex etiology so far from our customs and therefore difficult to accept.

Before sitting down I must answer some objections of my learned colleagues. Contrary to M. Mouquet I have many times seen the typhus or septicæmic forms in epidemics of distemper, classic and *vice versa*, forms identical with distemper in the midst of dogs smitten with typhus.

On the other hand, as M. Butel says, the disease of dogs which leaves ordinarily an obvious immunity against this affection, appears to provide only a very weak resistance when confronted with typhus.

That would be an objection if we did not prove the same facts experimentally with several varieties of *Pasteurella*. Thus if I vaccinate a fowl against a *Pasteurella ovis* rendered virulent and capable of destroying it or at least making it very ill, this fowl, which has acquired a certain amount of immunity comparatively to the control fowl, will be quite liable to death when I inject into it fowl cholera or *Pasteurella aviaire*. In the same way oxen vaccinated with *Pasteurella bovis*, which one meets with constantly in Argentina, succumb very readily on inoculation of a *Pasteurella* of Nha-Trang,* akin, or identical with the *Pasteurella* of the barbone of buffaloes. These are facts which seems to show that efficacious immunity against one *Pasteurella* may not be efficacious against another. That is perhaps what happens to typhus in the presence of distemper. I believe, for reasons which I will give at another time, that outside of that which one habitually calls the degree of virulence there is place for another thing which one might call the quality of the virulence. These are two connected, but distinct properties which have incited me more than all else to make polyvalent vaccines and sera. I do not think I ought to stop long over the differences in the nature of the histo-pathological lesions in the distinct forms of *Pasteurellosis*. What I have said of their diversity of combinations proves amply that it cannot be otherwise.

M. Dassonoville: Last year M. Phisalix described a mycelium in the form of entangled long filaments which he considers as an inordinately elongated form of the cocco-bacillus of the Pasteurellosis of the dog.

The argument on which he founds this identification is this—Inoculated in young dogs the culture of this mycelium kills these animals with the same symptoms and the same lesions as the pure cultures of the cocco-bacillus.

It is well known that, under the influence of diverse conditions, microbes are capable of undergoing profound modifications in their form, and that, in particular, the Pasteurella are frequently accused of having a marked tendency to the bacillary form. But all the same, from the morphological point of view, the mycelium of M. Phisalix differs in such a way from the usual forms of the Pasteurella that one hesitates to believe that this mycelium and the cocco-bacillus are two forms of one single and same kind. Certainly the experiment of M. Phisalix would be sufficient to remove all doubt in this respect, if in the carrying out of it he did not offer a handle to criticism. It is not absolutely certain in reality that at the moment when the author was making the inoculations the culture of the mycelium was exempt, in the absolute sense of the word, from every cocco-bacillus type. And further, could not the effects of these inoculations have been caused by the developments even of the cocco-bacillus without there being for that the least relation of kind between these two forms so far removed from one another? What seems to justify this view is to follow M. Phisalix, that this mycelial form reproduces itself badly in the cultures; at the end of five or six reinseminations it gives way to the cocco-bacillary forms. One must conclude from this that, at the time of the inoculations, the mycelium was of the third or at the most of the fourth generation. But after a number of reinseminations thus limited, is one in a position to affirm that this mycelium was isolated to the state of culture absolutely pure?

For my own part I think there is ground for reserving one's judgment on the identification of M. Phisalix's mycelium with the cocco-bacillus of the Pasteurellosis of the dog. At the same time we ought not to reject every means of enlightening ourselves on this subject. And as M. Lignières has submitted the microbe of M. Phisalix's vaccine to the most varied influences, I ask him *if, in his series of researches he has had occasion to observe the curious mycelial forms which M. Phisalix has described.*

* A variety of the *Pasteurella bovis* isolated from cases of bovine Pasteurellosis occurring in the Nha-Trang.—Trans.

I shall be obliged if he will tell us, furthermore, *if in the course of his own studies on the Pasteurellosis of the dog he has ever met with these abnormal forms?*

In my opinion these questions are not without interest in the present case. For, according to M. Phisalix, the mycelial forms should be relatively frequent (the author has observed them four times) and if Pasteurella canis were really susceptible to such a polymorphism, such a peculiarity would deserve to be taken into consideration when the question is to establish the identity of M. Lignières' microbe with M. Phisalix's.

M. LIGNIÈRES: The mycelial forms of the *Pasteurella canis* described by M. Phisalix have puzzled me very much, and I have not failed to seek for them both with the microbe drawn from M. Phisalix's vaccines and with my own. Now I have indeed seen bacillary forms somewhat long, and the strepto-bacilli which I have mentioned many a time, but never have I succeeded in finding any mycelial forms. Besides I have not succeeded in obtaining them from M. Phisalix whom I asked for them at the same time as his microbe.—(Translated by HENRY GRAY, M.R.C.V.S., from the *Recueil de Médecine Vétérinaire*, 30 Juillet, 1903.)

By an oversight last week, Prof. Koch's name was omitted at the head of his report on Rhodesian Cattle Disease. So, too, was the title of the *Cape Agricultural Journal*, from which the report was taken.

TUBERCULOSIS IN CHILDREN: ITS RELATION TO BOVINE TUBERCULOSIS.*

NATHAN RAW, M.D., M.R.C.P.Lond.,
Physician, Mill Road Infirmary, Liverpool.

Dr. RAW said: The relation of tubercle bacillus to the many and varied diseases which attack children is not yet thoroughly understood, but I am inclined to think it plays a much more prominent part than we are disposed to believe. What concerns me most in the study of this most difficult problem is, To what extent are these tuberculous lesions produced by cow's milk?

Professor Koch, the greatest authority on tuberculosis, holds the view that human and bovine tuberculosis are separate and distinct diseases, and that bovine tuberculosis could not be conveyed to the human.

With the latter part of this statement, I beg in all humility to differ from Professor Koch, and I will endeavour to lay before you my reasons for believing that bovine tuberculosis is frequently conveyed to children by means of milk, and is the cause of a considerable mortality.

Now it must be admitted that the great body of experimental evidence is in favour of Koch's first contention that the two diseases are distinct, and that it is almost impossible to produce a general tuberculous infection in cattle by inoculating them with human bacilli from sputum. But it does not necessarily follow that because human bacilli have a low virulence for cattle that therefore bovine bacilli have only a slight pathogenic power for man, especially when we consider that bovine bacilli are not only virulent for cattle but for various other animals, such as the rabbit, horse, dog, pig and sheep. It therefore appears reasonable to suppose that they would be virulent to man, since it is a fact that "all the disease producing bacteria that are common to all the domesticated animals are also pathogenic to man" (M'Fadyean). In short, Koch argues that bovine tuberculosis, being a distinct disease from human tuberculosis, cannot produce the human variety in the body.

With this view I agree, but I am of opinion that man is attacked by two distinct varieties of tubercle, one conveyed by infection from one person to another, the other by receiving into the body bovine bacilli in milk or meat.

During the last few years I have had under observation over 2,000 cases of phthisis pulmonalis, and I have been particularly impressed with the fact that the tuberculous process is nearly always confined strictly to the lungs. The patient usually gives a history first of a cough, then of expectoration; the disease often progresses to death, and the necropsy reveals destructive lesions of the lungs and nothing more. Out of these cases of phthisis pulmonalis I have only seen the glands and joints affected in 8 cases, and in the late stages one sees the intestine and peritoneum involved. Phthisis pulmonalis is essentially a disease of young adult life. It is rare to see it as a primary affection under the age of 12, the great majority of deaths taking place between the ages of 30 and 40, as my table will show. On the other hand, strumous or tuberculous joints, enlarged glands, spinal disease, and abdominal tuberculosis with tabes mesenterica, are essentially diseases of infancy and childhood, and are only rarely seen in adult life. I have given particular attention to the clinical manifestations of these various tuberculous affections, and it is rare to see a patient with enlarged glands, strumous joints, or spinal disease develop true phthisis pulmonalis. In fact, clinically they appear to be antagonistic to each other, attacking the body at quite different periods of life, and exhibiting generally opposite symptoms. There are at the present time 118 cases of phthisis pulmonalis in the hospital, and in no case is there any other gross tuberculous lesion present, which would certainly be the case if they were all caused by one identical bacillus which would be free to be conveyed all over the body.

Again, I have had the opportunity of seeing over 500 necropsies on cases of tuberculosis, and I have noted that even the lungs are attacked by two distinct varieties of tuberculosis—one of a slow and insiduous nature, the other rapid and acute, and generally associated with tubercle in other parts of the body. If one compares the appearances seen in cattle dying with tuberculosis with those of children dying of tabes mesenterica and abdominal tubercle, the almost exact counterpart is seen; in fact, as Creighton observes, there is an exact mimicry of disease.

From these general clinical and pathological observations I am inclined to think that primary intestinal tuberculosis, tabes mesenterica, and other tuberculous affections of the serous membranes in children are probably bovine tuberculosis conveyed by milk, and are not related to human tuberculosis, although the bacillus of Koch is found in them all, and is indistinguishable.

Tabes Mesenterica.

Now let us take first of all tabes mesenterica. By this disease we mean what is commonly called "consumption of the bowels," and is one of the most common forms of abdominal tuberculosis in child.

Infants and children suffer from tuberculosis of the intestines and glands, but it is perhaps more common before the age of 2 years than afterwards. In 103 consecutive necropsies of children dying of tuberculosis at the Manchester Children's Hospital, there was tuberculous ulceration of the intestine in 62, cheesy mesenteric

*At the Meeting of the British Medical Association at Swansea, in July.

glands in 71, and both ulcers and cheesy glands in 55, tuberculous glands without ulcers of intestine in 7. Ashby states that in at least 70 per cent of children dying of tuberculosis disease of the mesenteric glands was present, and in rather more than 55 per cent. tuberculous ulceration was associated with it, and, he wisely says, primary tuberculosis of the intestine is suggestive of infection by means of tubercle bacilli taken in milk from a tuberculous cow. The figures at the Great Ormond Street Children's Hospital, London, are as follows: In 254 tuberculous children examined *post-mortem*, 151, or 59 per cent., showed cheesy mesenteric glands, and Dr. Still found that in 29 per cent of cases of tuberculosis in children, primary infection had taken place through the intestine. Woodhead records 127 cases of fatal tuberculosis in children, with involvement of the mesenteric glands in 100.

My own experience of this affection coincides with these figures, and of 273 cases which I have diagnosed clinically as tabes mesenterica, only 38 have come to necropsy.

I grant it is extremely difficult to exactly diagnose the onset of tabes mesenterica, and it is not to be assumed that a great many of cases of diarrhœa, wasting and inanition in children are tuberculous, as they certainly are not; but I believe that tabes mesenterica is a great deal more common than is generally supposed, and, what is more, a great number of children who receive a mild infection, which is confined to the mesenteric glands, recover absolutely. I have seen this frequently in the hospital, where enlarged palpable mesenteric glands have slowly subsided, and under proper treatment the child has quite recovered. In 5 cases in which I have opened the abdomen during life for hernia and other abdominal disorders I have seen the mesenteric glands much enlarged and apparently cheesy, with sometimes nodules on the peritoneum, yet these children were not suspected of being tuberculous, and they all left the hospital well. Many other surgeons and physicians will be able to confirm this point. Assuming these mesenteric glands to be tuberculous, the question arises, How do the tubercle bacilli find their entrance?

This difficult problem cannot be proved like an ordinary scientific experiment, since it is impossible to inoculate the human being, and I sincerely hope it will never be attempted. But by carefully considering all the known facts bearing on the question, we ought to be able to find an answer which in all human probability will be approximately accurate.

I claim your indulgence when I attempt to lay before you all the evidence which I can in support of my view that tabes mesenterica is caused by bovine tubercle bacilli in milk.

If we consider for a moment the remarkable diminution in human phthisis during the last fifty years, amounting to over 45 per cent., we should naturally expect that other forms of tuberculosis would have fallen in the same ratio were they all caused by the same bacillus. But this is not so; on the contrary, the death-rate from abdominal tuberculosis in children, as shown by Sir Richard Thorne-Thorne, has greatly increased, amounting to over 20 per cent, and, what is more significant, tuberculosis in English cattle is rapidly increasing.

Veterinary authorities, such as Nocard, Bang, Dollar and M'Fadyean, agree that about 20 per cent. of dairy cattle suffer from tuberculosis, and recent official figures from different parts of England show that in London dairies 25 per cent., in Edinburgh 40 per cent., Midlothian 23 per cent., Durham 19 per cent., and Yorkshire 25 per cent. of the cows are tuberculous.

If, however, every tuberculous cow produced milk containing living tubercle bacilli, the whole community would be in danger: but it is now generally admitted by experts that only cows with a tuberculous affection of the udder are really dangerous, and the percentage of such cases is very small, only amounting to 2 or 3 per cent.

It is my custom at the infirmary to carefully inquire into the milk history of all children admitted with abdominal tuberculosis, and the usual history is as follows. Child fed on the breast for a few months, afterwards cow's milk, which is generally bought in halfpennyworths and pennyworths at the milkshop. I have made most careful enquiries during the last five years, and I have never seen a case of tabes mesenterica which had not been fed for some weeks or months on cow's milk. This I consider a most significant fact.

With a view to excluding infection from parents or family at home I have made a most careful enquiry on this point, and of the 34 deaths only one child had a phthisical parent, so that the probability of infection in this direction is extremely small.

Now it is argued by some observers that the tubercle bacilli are not primarily introduced into the body through the mesenteric glands, but that these become affected later on from some other part. If this is so, I ask, How is it that adults suffering from phthisis do not become affected in the mesenteric glands in the same way? It is a fact that they rarely do so, and it is very unusual to see the mesenteric glands affected in phthisis pulmonalis, except as a late affection following secondary intestinal ulceration.

The next link in the chain is the clinical history of a case of tabes mesenterica. In a Poor-law infirmary we often see the child from the commencement of the illness—chronic intestinal catarrh with diarrhœa of offensive yellow stools, with perhaps streaks of blood, a general wasting, and distension of the abdomen. I have examined very carefully several such cases, and have invariably found the chest quite healthy in the early stages of the illness. As the disease slowly progresses, and the atrophy and wasting consequent on the diseased mesenteric glands continues, the general tuberculosis symptoms are more pronounced, the temperature becomes hectic, the child begins to cough, and on examination the lungs are found to be tuberculous, and the child invariably dies. The point I wish to make is this. The infection commences in the mesenteric glands from the intestine, slowly spreads to the retroperitoneal glands, then through the diaphragm to the glands in the posterior mediastinum, and finally to the lungs. If the child lives long enough the brain may be affected too. At the necropsy this process has been corroborated again and again, and I have a case where there was extensive caseation of the mesenteric, retroperitoneal, and portal glands, and only a few grey tubercles at the base of both lungs.

In nine cases the lungs have not been attacked at all, the disease being confined to the abdomen. If we compare the course of this infection with that seen in the calf which is fed on tuberculous milk, we see an exact mimicry of the disease in every detail. The direction of the lymph stream would be strongly in favour of infection from the intestine to the thoracic organs.

Passing from the clinical to the bacteriological side of the question, we know that if the various tuberculous lesions in the body are carefully examined the bacillus of Koch is usually found, and, in my opinion, this has led to error in assuming that we were dealing with one bacillus. Koch has shown, I think conclusively, that human and bovine tuberculosis are distinct diseases, but the bacillus of both is morphologically identical and cannot be distinguished under the microscope.

On the other hand, the cultures of the two diseases are different, and Professor Ravenel affirms that "the tubercle bacillus from bovine sources has in culture fairly constant and persistent peculiarities of growth and morphology by which it may be differentiated tentatively from that ordinarily found in man."

From a recent case of tabes mesenterica I made cultivations of the mesenteric gland on blood serum with glycerine, and to my surprise the growth exactly corresponded to bovine tuberculosis or *Perlsucht*. Again from a strumous knee-joint I made a cultivation from the interior of the joint, with an exactly similar result.

I also inoculated two young heifers with the tuberculous material from a case of advanced hip-joint disease and advanced disease of the knee-joint. They both got thin and wasted, and after four months were killed.

At the necropsy there was found in each animal an extensive involvement of the mesenteric glands but no affection of the viscera. Tubercle bacilli were found in the glands of each heifer.

The experiments recently reported in *The British Medical Journal* by Macfadyean and McConkey are most interesting, and show that active tubercle bacilli are present in a large number of cases not suspected of being tuberculous.

"The experiments have shown that in the non-tuberculous cases, virulent tubercle bacilli were present to the extent of 25 per cent. The tubercle bacilli, it appears from these experiments, are present much more frequently in the mesenteric glands than ordinary necropsies would lead one to suppose." This evidence strongly supports the view that I have for a long time held: that a great many children receive a mild infection of mesenteric tuberculosis through cow's milk, and recover absolutely, the infection getting no further than the glands.

We have all seen cases of tuberculous peritonitis completely recover after opening and draining the abdomen, and nothing more. So far no satisfactory explanation of this result has been given.

My opinion is that it is a localised bovine tuberculosis which has died out, and that relief of the fluid is sufficient to cure the patient.

Taking all these facts into consideration, I am of opinion that bovine tuberculosis is very virulent for children, and is accountable for tabes mesenterica and other varieties of abdominal tuberculosis; in fact, I believe it to be more virulent for children than human tuberculosis.

In arriving at this conclusion I lay great stress on the fact that, out of nearly 300 cases of tabes mesenterica observed during the last twelve years, I have never known one to occur in a child which had been fed strictly on the breast, the whole of them, without exception, having been reared on cow's milk for some considerable period.

Scrofula.

We all know now that scrofula, so-called, is nothing more or less than tuberculosis of the lymphatic glands, but is it human tuberculosis?

I must confess to a difficulty in understanding how it is that these local tuberculous lesions such as enlarged glands in the neck, pulpy joints, and caries of the spine should generally develop in childhood, and in the majority of cases recover and never be heard of again. For it must be admitted that these cases rarely develop tuberculosis of the lung except in the process of a general infection.

Out of over 2,000 cases of phthisis I have only seen enlarged cervical glands in 5, and although one occasionally—but very rarely—sees phthisis pulmonalis follow operation on these glands, it might be explained by direct extension of the deep cervical lymphatic glands to the apex of the lung. How many scores of strong, healthy, vigorous children and adults do we see who have suffered from tuberculous glands in the neck with never a symptom in after-life. Surely these people cannot be classed as tuberculous; they have suffered from a mild infection of tubercle bacilli, which was in all probability bovine in origin and absorbed from milk.

I was particularly impressed when attached to the Dundee Royal Infirmary with the number of strong, healthy, vigorous children from the country districts in Forfarshire who were brought to the hospital suffering from enlarged glands and strumous joints. In many cases general constitutional treatment, with change of air—for change of air means change of cow—produces a cure, or, if necessary, remove the glands or diseased joint, and the child becomes fat and makes a perfect recovery.

The most reasonable theory is that scrofulous glands in the neck are produced by the absorption of tubercle bacilli in milk through the tonsils and pharynx, and is, as a rule, a purely local affection. This view is supported by feeding experiments on animals. If pigs are fed on tuberculous milk they invariably develope enlarged tuberculous glands of the neck and throat which on inoculation produce bovine tuberculosis in cattle, and tuberculous lymphatic glands from the human when injected into calves have produced a general tuberculous infection. This is strong presumptive evidence of their being bovine in origin.

If this view is correct it would help to explain the occurrence of acute general tuberculosis occuring in those suffering from an unhealed focus, such as a gland, a strumous joint, or a psoas abscess, for we are all aware of the danger of operating on a caries of the spine, a tuberculous bone lesion, or removal of glands, lest a general blood infection should follow. If we observe closely this acute general tuberculosis we find it closely resembles that seen in cattle, affecting chiefly the serous membranes and the lungs, a condition which rarely accompanies phthisis pulmonalis.

Tuberculous Meningitis.

It is often a matter of perplexity to the doctor to explain the onset in a previously healthy child of an attack of tuberculous meningitis. Sometimes it is confined to the brain, at others it is a part of a general infection. Perhaps it is a bovine tuberculosis, as we have all seen necropsies where there has been no other discoverable evidence of tubercle. There is also much evidence to suggest that acute miliary tuberculosis is also bovine in origin. I have mentioned a few points briefly with the object of having the opinions of others on this difficult and absorbing problem, and I conclude by expressing the opinion, based almost exclusively on clinical and pathological evidence, that human and bovine tuberculosis are distinct varieties of disease as shown by Professor Koch, but that the human body is susceptible to both, and especially to bovine tuberculosis in the early periods of life.

The two diseases are so rarely seen together in the human that there seems to be some ground for presuming that they are antagonistic to each other, and that bovine tuberculosis may possibly confer an immunity against human tuberculosis. If this opinion should prove correct, I venture to submit that it would reconcile the conflicting opinions which have been so frequently expressed during the last two years on this most terrible of all diseases.—*The British Medical Journal.*

(To be continued)

TRANSVAAL VETERINARY ASSOCIATION.

A meeting of the Council was held in Long's Hotel, Johannesburg, on August 5th. Captain Irvine Smith, S.A.C. (president), being in the chair. The other members were:—Messrs. Gavin, Christy, Kellet, and Pilkington (hon. secretary.)

After the minutes of the previous meeting had been confirmed, the Secretary brought forward a letter from the Central Veterinary Medical Association, England, enclosing draft memo, setting forth grievances of the

Army Veterinary Department, and asking for the Council's support and approval, before forwarding same to the Secretary of State for War. After full discussion the Council unanimously agreed to give its full support to the movement.

It was also agreed to have the Transvaal Veterinary Medical Association incorporated in accordance with the Ordinance recently passed by the Legislative Assembly of the Transvaal.

A discussion on Mallein Test for Glanders will be continued at the next Council meeting.

The date of next general meeting was fixed for 14th September, at the Grand Hotel, Pretoria.—*Transvaal Leader.*

Presentation to Mr. Lloyd.

On Wednesday evening, Aug. 19, the Committee which carried out the successful local turn-out competition in connection with the Yorkshire Show, met at the Corner Pin Hotel, to wind up its affairs. There was a short business meeting, and then a most enjoyable supper was provided by Councillor A. Taylor, Alderman Nixon, J.P., presided, and was supported by Councillor J. Clarkson, Councillor A. Taylor, Mr. Barker, deputy Chief Constable; Messrs. J. S. Lloyd, hon. sec., W. Longden, J. Hubner, W. H. Lawson, S. E. Samson, A. R. Grimes, J. H. Yates, P. Molloy, W. Silvester, H. Nixon, T. Hill, T. Kay, A. Parker, T. C. Fletcher, W. Swallow, J. Jackson, A. E. Needham, G. Harston, and F. Pearson, Chesterfield. The loyal toasts from the chair were honoured.

Mappin and Webb's silver bowl, with inscription, was presented to Mr. A. R. Grimes by the Chairman.

Alderman Nixon said they were indebted to those who gave prizes, especially Messrs. Mappin & Webb, the Shire Horse Society, John Walsh (Limited), Mr. Albert Bingham, J. Kaye and Sons, J. Lawson, Levesley Brothers, Joseph Rodgers and Sons (Limited), G. Birkett, H. L. Brown and Company, Harrison Brothers and Howson, Wilks Brothers, Vanner and Prest, Crawley and Son, Britain, Parkes and Gnosall, Millars and Company, G. Welch. (App.)

The Chairman, on behalf of the committee, presented a silver tankard to Mr. J. S. Lloyd, M.R.C.V.S., the hon. secretary of the local turn-out classes. The Chairman said the cup was intended as a memento of the highly successful show they arranged, through the suggestion of Mr. Lloyd, for the last day of the Yorkshire Show. Mr. Lloyd had been in the city only a short time, but he took up the work of hon. sec. of that Committee with so much energy and zeal, and had displayed such great organising ability, that he had made many lasting friends. Their show was the feature of Friday's exhibition at Hillsborough, thanks to the way in which it was organised by Mr. Lloyd. (App.) The Council of the Yorkshire Society recognised the way in which Mr. Lloyd worked; and greatly appreciated the efforts of the Committee. (App.) They all highly esteemed the excellent work Mr. Lloyd had done. (App.)

Councillor A. Taylor agreed that the success of the local turn-out classes was entirely due to the energy and organising ability displayed by Mr. Lloyd. He hoped the formation of that committee, and the success achieved, would induce them to hold an annual parade of horses, or something of the kind. (App.) Such parades encouraged carters to take a greater pride in their horses. The show they had was in every way creditable to the city. (App.)

Mr. Barker, Mr. T. C. Fletcher and others also bore testimony to Mr. Lloyd's work. Mr. Fletcher said the parade was the best local parade ever held in the city. (App.)

Mr. Lloyd, received with musical honours, said he took action in the matter owing to a suggestion by "Rambler" in *The Telegraph*. As soon as he started the movement there were ready helpers. He could not have scored success alone. Success was due to the united efforts of all of them. (App.) He was in favour of an annual May parade of horses. (App.)—Thanks were given the Health Committee and Mr. Jackson, of the Cleansing Department, for the assistance they gave by sending turn-outs to the show. (App.)

A vote of thanks was tendered to Councillor and Mrs. Kelley, and the hope was expressed that Mr. Kelley would soon be restored to health.—*Sheffield Daily Telegraph.*

DISEASES OF ANIMALS ACTS 1894 & 1896.

SUMMARY OF RETURNS, WEEK ENDING AUGUST 29, 1903.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Rabies.		Swine Fever.	
							Cases Confirmed.			
	Outbreaks	Animals Attacked.	Outbreaks.	Animals Attacked.	Outbreaks.	Animals Attacked.	Dogs.	Other Animals	Outbreaks.	Slaughtered as Diseased or Exposed to Infection
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Week ended August 29, 1903 ..	15	18	..	..	39	64	..	..	14	90
Corresponding week in 1902 ..	11	18	..	..	24	56	..	..	13	45
Corresponding week in 1901 ..	4	8	..	..	37	60	..	..	33	125
Corresponding week in 1900 ..	9	10	1	3	27	45	..	..	29	186
Total for 35 weeks, 1903	550	838	..	..	1029	1669	..	..	1109	5,688
Corresponding period in 1902 ..	476	768	1	120	784	1395	12	11	1,215	5,500
Corresponding period in 1901 ..	434	618	12	669	930	1585	1	1	2,661	12,834
Corresponding period in 1900 ..	372	648	13	212	749	1268	1	..	1,499	14,699

NOTE.—The figures for the Current Year are approximate only.

Board of Agriculture, Sept. 1st, 1903.

Veterinary High Schools in Germany

A notable example has been set by Germany in the matter of veterinary legislation, the results of which are very salutary. In this country veterinary science does not rank on the same level as medical science, though such eminent authorities as Virchow and Voit have repeatedly declared that the two branches only differ from each other as regards the objects they treat and not in any other essential respects. In Germany State Ministers have publicly recorded their conviction that as far as scientific foundation and depth are concerned, the study of veterinary science at the veterinary high schools differs little or not at all from the study of medicine at the Universities. Even in the Kaiser's dominion some considerable time must elapse before the deeply-rooted prejudices with respect to veterinary surgeons definitely disappear, but it may be safely affirmed that the tendency there to regard medical and veterinary science as equivalent, and complementary branches of one great science, is steadily gaining ground. At present Germany possesses six veterinary high schools, and in the case of Giessen the institute is attached to the medical faculty of the University. These schools are, however, not self-supporting, and the annual deficits, are borne by the States in which the establishments are situated. At Dresden, Hanover, Munich, and Stuttgart the State-aid amounts to £28,250, the expenditure on the schools having been £333,150. The conditions of the final examination for the diploma of veterinary science are fixed and regulated by the Empire, and during the last 25 years the students at the high schools have increased in number from 395 to 1,470. — *The Worcester Daily Times.*

Hull Meat Scandals

The members of the Hull City Council were called from their holidays on Monday, August 24th, to attend a special meeting in order to discuss two rival reports bearing upon what is locally known as "Meat Scandal No. 2." The Mayor (Sir Alfred Gelder) presided, and the gallery reserved for the public was packed with traders interested in wholesale and retail butchering.

Briefly stated, the facts are that the carcase of a cow was submitted to the temporary meat inspector (Mr. Longhurst) who passed it as fit for human food. It appears that members of the Master Butchers' Association ascertained that the cow had been found dead in a field at Keyingham, and was far advanced in pregnancy. The carcase was sent to the condemned meat warehouse, where it was seen by the City Medical Officer (Dr. Mason), who confirmed Mr. Longhurst's opinion in so far that it could not be seized by the authorities.

Such an outcry was raised that the Sanitary Committee ordered an inquiry and heard expert evidence of a most contradictory character from professional men, with the result that the members of the Committee were almost equally divided, and a minority as well as a majority report was prepared and presented.

Mr. Feldman moved the adoption of the majority report recommending a drastic system of inspection as well as the establishment of a public abattoir; but expressed no opinion as to the fitness of the carcase in question as human food. He said the object of those opposed to the recommendations was to discredit the inspection of meat by veterinary surgeons or doctors, and to induce the Council to revert to the old condition of things, and get the work done by a butcher. In this course they had the Hull Butchers' Association behind them; and it was a significant fact that the Association, which was so active now, should have refrained from interfering in previous cases when it was discovered that anthrax carcases were being brought into the city.

Mr. Costello seconded the adoption of the report.

Alderman Crook moved the adoption of the "minority report," recommending that whatever might be done in regard to the appointment of a veterinary surgeon with bacteriological qualifications, the meat inspector responsible for the initial work in general oversight of the meat supply of the city should be a man of practical experience and capable of judging meat upon its appearance. He said that if no attempt had been made to justify Mr. Longhurst and their Medical Officer (Dr. Mason) in their decision as to the fitness of the meat for human food, there would have been an end of matter. Dr. Mason, he held, ought to have confessed that he had made a mistake.

Mr. Gould held that they had no real meat inspection in the city to-day because many of the sanitary inspectors hardly knew a beast from a sheep. He insisted that meat inspectors must be butchers, and not veterinary surgeons.

Mr. McLaren also doubted the capacity of the ordinary inspectors to judge the quality of meat. He regretted that Dr. Mason did not admit that he had made a mistake in stating that the carcase was fit for food, especially after he had been told that the cow had been found dead in a field.

Dr. Robinson, who defended the majority report, pointed out the evils and dangers of the private slaughter-houses, and the need for a thorough-going system of inspection. He complained that the butchers who knew the history of the Keyingham carcase deliberately withheld the information from the Medical Officer when he was called in to inspect it.

The discussion had gone on at great length, when the Mayor, in the hope of allaying the ill-feeling that had been created, suggested a compromise in the form of a resolution declaring the carcase to have been unfit for food, but exonerating the inspector on the ground that when he passed it he had not the full information before him.

This was rejected by the movers of the rival reports, and the debate was continued till after seven o'clock. A division was then taken, when a large number of councillors had left the chamber. The minority report was carried by 24 votes to 12, the object of the authors of it being chiefly to declare the carcase unfit for food.

The Sanitary Committee recommended that Mr. James McPhail, veterinary inspector under the corporation of Edinburgh, be appointed Chief Meat Inspector for the City of Hull at a salary of £400 per annum.

Mr. McPhail is a Fellow and Hon. Vice-President of the Edinburgh Veterinary Medical Society, medallist in morbid anatomy, pathology, and histology. He was formerly demonstrator in anatomy, pathology, and bacteriology in the New Veterinary College, Edinburgh.

Mr. Grindell moved that the recommendation be referred back.

Alderman Rollit seconded the amendment, on the ground that the city did not require a man at such a salary. They wanted a man with a trained nose, common-sense, and a good eyesight. To his mind they were spending a great deal too much money. (Hear, hear.)

On a division the amendment was carried by 32 votes to 22, and the minutes were referred back.

Alderman Crook pointed out that the decision placed the members of the Sanitary Committee in a singular position, because by a resolution of the Council they were empowered to appoint a meat inspector at a salary of £400 a year; and to be consistent that resolution should be rescinded.

The Mayor said that the Sanitary Committee had got the feeling of the Council, and they must either bring up the recommendation again or formulate some other. —*The Yorkshire Post.*

Animals Mutilated.

A solicitor named George Edward Edalji was arrested at Birmingham on August 19th on a charge of wilfully mutilating a horse belonging to the Great Wyrley Colliery Company, Cannock, on Tuesday night.

The arrest has caused much sensation in the neighbourhood of Cannock, where for some time past there have been many cases of brutal maiming of horses, cows, and sheep, animals to the value of over £200 having been killed.

Edalji's father has for some time been vicar of Great Wyrley.

When Edalji was charged before the Cannock magistrates Inspector Campbell spoke to going to the vicarage and examining Edalji's clothing, on which he found horse hairs, saliva, and a stain which looked like dry blood. He also found a blood-stained handkerchief.

He then went to Birmingham and arrested Edalji, who denied having worn the clothes on the previous night, although his mother had said he did wear them.

The Rev. F. Edalji said he occupied the same bedroom as his some, who was not out of the room during the night.

The magistrates remanded the young man till Monday, and declined to grant bail.—*Daily Express.*

CORRESPONDENCE.

THE A.V.D.

Sir,

In your issue of 22nd inst. you published a reply from Mr. Brodrick regarding the A.V.D., in which he denies the knowledge that the leaders of our profession have advised recent graduates not to join that branch of the service. Now is it a fact, that this advice has been given? Undoubtedly many protests have been made, but I believe we can get proof that public speeches have been made on these lines. Will you, or any of your readers, reply giving names and dates when any of the Principals or Professors of Colleges spoke as Mr. Brodrick has denied.

You advise us to keep pegging away by getting questions put to the Secretary for War. Principal Williams says that we should not worry the War Office at present, as they are going into the matter. Now which is the correct advice to follow? I observe some societies still take the middle course and formally pass a protest, which only gives their Secretary some worry in having to write it out, and in return they get the usual reply. No doubt some of these societies contain amongst their members gentlemen who might justly be considered leaders, but the Right Honourable Gentleman the Secretary of State for War knows better, judging from his reply to Mr. McKillop.

To return to your advice and that of Principal Williams; which are we to follow? Let us weigh it up. Is it true or is it not that Mr. Brodrick has been looking for parties to act as veterinary surgeons, other than those who hold our diploma? You have stated so, if I remember correctly; and, if true, does the President of our College still advise us to trust a man of that type? Common-sense and a very little experience of a certain class of Parliamentarian have taught me never to believe a statement made nor a promise given, until I have actual proof in cold print, or the deed accomplished.

If further proof is necessary to convince the profession of the loving care and interest that the War Office takes in us, let me quote their very latest. Many of your readers no doubt have read of the great scheme of defence drawn up by Mr. Brodrick in which he divided the Army into a certain number of Army Corps, each to be complete within itself. Early in September the autumn manœuvres are to take place, and of course veterinary surgeons are, unfortunately for Mr. B., necessary evils. What does this brilliant organiser do, who has known for a year of these manœuvres? Act on the finding of the report signed on 8th April last? Not a bit of it! He, or those for whom he is responsible, are endeavouring to get civilian veterinary surgeons to fill vacancies in the regiments operating during that period. I believe they are offering £1 4s. per day and certain expenses are to be paid. This seems all right at the first glance for a young fellow who enjoys a holiday of that kind. But it cuts deeper when we pause and think that we, by assisting this Department in their trouble, are enabling the War Office to postpone the day when they will rectify our grievances. Some seem to think that by pandering to Mr. Brodrick we will be helping ourselves. Let those who believe in him think of the outside assistance we gave him during the war, and let them try to remember the many thanks and improved conditions he granted to our fellow practitioners in the Army or about to join it. Did he grant the recent Committee out of the fullness of his heart? Not much! He felt forced by protests and questions to do something. It is a very old trick to get a troublesome subject sent to a Committee, and chance that when they report the worrying member will be either dead or has lost interest in the subject. You will observe, sir, that he does not intend to publish the finding of this Committee. Is this not additional evidence that he is a past master in the game of shuffle? If he published the report he clearly sees that he would be putting fresh weapons into the hands of the veterinary profession, and probably be forced to act on the finding.

Now I plead to your readers to take your advice and make a determined attack on Mr. Brodrick through their members immediately Parliament reopens. This letter is much longer than I anticipated when I sat down, but my excuse is simply that I wish to rouse the indifferent ones, and to convince all that there is no other method of securing right in our case than by harassing the Secretary of state for War when in his place in the House of Commons.—Yours truly, A CIVILIAN.

[We have no knowledge that is not public. Principal Williams has, and therefore his advice may be best. We do not distrust him, but we are sceptical—*ne credite teneri.*—ED.]

HERBIVORA AND THE FŒTAL MEMBRANES.

Dear Sir,

I have been interested lately in watching the proceedings of animals almost immediately after giving birth to their progeny, and this morning I had under observation a cow that gave birth to a strong bull calf in the pasture close to my house. As soon as birth had taken place after the mother had licked the calf over, she proceeded to devour the placenta and membranes, which operation took her nearly half-an-hour; this done she walked away with the youngster and no more was seen of her. Now I want to know why it is that animals do devour these membranes, etc.—is there any cleansing or purgative properties in them? One can understand a pig, or cat, or dog doing this, but why should a graminivorous animal like a cow do so? or a horse or a sheep? Surely there is food for thought here, and I for one should like to hear the opinions of some of the members of what is becoming one of the most scientific of our professions, viz., the veterinary.—I am, sir, yours, etc.,

"NOT A VET."

Norwood, Aug. 27.

COMMUNICATIONS, BOOKS AND PAPERS RECEIVED.—Messrs. G. Mayall, J. C. Coleman. Lt. A. J. Williams.

Report of the Health of the City of Manchester, by James Niven, M.A., M.B., *Prize List etc., St. Louis Exposition 1904. The Transvaal Agricultural Journal, The Transvaal Leader.*